

# ENGINEERING CHANGE NOTICE

## DART AEROSPACE LTD

MPP

Date: 18.01.18	Job No.: PI17-822-04	ADR Yes/No: N	ADR Date: <del>18.01.18</del>	ECN #: 18- 509
Product No.: D350-822		Created By: RF	Approved By: <del>RF</del>	
Product Name: PA100 PUREair System		Checked By: <del>RF</del>		

Distribution	Reqd	Resp	Initial / Date (YY/MM/DD)	Distribution	Reqd	Resp	Initial / Date (YY/MM/DD)
Director of Operations	Y	JLM		DQA / QA Coord.	Y	MD / ED	
Production Planning Man. / Prod. Planner	Y	LL / MP		QC Coordinator	Y	PD	
Supply Chain Director / Purchasing	N	RA / CL		Customer Support	Y	SW / LM	
Production Engineering Coord.	Y	DD / JFS		Customer Technical Support	Y	MB / EL	
NCR / PAR / CAR / CIR / URF Coordinator	Y	SAD		Marketing	Y	WR	
				Prod. Man. Solution Provider	Y	SL	

**Reason for Change:** Refer to PAR17-587

**Documents Affected:**  
 DSI 9793 Rev. A  
 D5526 Rev. A  
 MDL-D350-822 Rev. N

**IF APPLICABLE:** NCR: \_\_\_\_\_ PAR: 17-587 CAR: \_\_\_\_\_ CIR: \_\_\_\_\_ URF: \_\_\_\_\_

**PAPERWORK UPDATE** ☒

**PARTS MUST COMPLY** ☒

**PREVIOUS PARTS SATISFACTORY** ☐

#	Quality Assurance Actions	Reqd	Resp	Notes	Complete
1	Notify Previous Customers	Y	MB	As required	
2	Notify Eurocopter France	N			
3	Notify Augusta Westland	N			
4	Manufacturing Licensing Agreement Update	N			

#	Engineering Actions	Reqd	Resp	Notes	Complete
5	Required Documents/Drawings/Item ID's Under Review (URF)	N			
6	Update Master Document List (MDL)	Y	RF	MDL-D350-822 Rev. N	18.01.18 RF
7	Update Document Record (DR)	N			
8	Update Product Compatibility Matrix	N			
9	Notify TC / FAA of Change (eg. ICA, 8110-3)	N			
10					

#	Document Control Actions	Reqd	Resp	Notes	Complete
11	Move / Update Electronic Files / Design Journal	Y	KJ		18.02.13
12	Update Product Specification Files (Bluefiles)	Y	KJ		18.02.13
13	Update Approved/Preliminary Dwg PDF Files	Y	KJ		18.02.13
14	Update Product Development Summary (STC applications)	N			
15	Update QSI 021 (TC/FAA STC) and/or STC Approval List	N			
16	Create/Update Parts / STC Database	Y	KJ		18.02.13
17	Update / Verify Airworthiness Release Certificate Database	Y	KJ	For DSI 9793-011	18.02.13
18	Create / Update Change Record Form / Item Card Database	Y	KJ	DSI 9793-011 @ CHG 001	18.02.13
19	Create / Update Packaging Process Plan (PPP)	Y	KJ	For DSI 9793-011	18.02.13
20	Red Decals required on Packaging Process Plan (PPP)?	N			
21	Update Controlled Supplier Documents (Qpulse) Database	N			
22	Update Grey Project Binder / Electronic Project Folder	Y	KJ		18.02.13
23	Update D-Part / M-Drawing / DSI / DEO Master Binders	Y	KJ		18.02.13
24	Update "Royalty Paid to" attribute (Parts sold under Dart USA STC's)	N			
25					

**Description / Action:**

- Create routes/BOMs for D5526-1/-3 and DSI 9793-011
- Close following quality document PAR17-587
- Advise CoyotAir we have a solution to the D4693-1 Flex Hose wear issue.
- Add DSI 9793 Rev. A to kits in stock.
- Put a small quantity of DSI 9793-011 kits in stock (qty 5)

Route + BOM not made yet 18-02-15  
 all kits made 18-03-08

ECN Verified & Complete: \_\_\_\_\_ Date: \_\_\_\_\_



# DART SERVICE INSTRUCTION

TO AMEND IIN-D350-822 REV. G OR LATER APPROVED REVISION  
AND ICA-D350-822 REV. 5 OR LATER APPROVED REVISION

REF. TCCA STC: SH14-14  
REF. ANAC STC: 2014S07-11  
REF. FAA STC: SR03538NY  
REF. JCAB STC: STC-372-OSA/STC-371-OSA  
REF. EASA STC: 10056574

## 1.0 INTRODUCTION

It has come to Dart's attention that some customers are experiencing wear of the D4693-1 Flex Hose on the D350-822-011 PA100 PUREair System because of rubbing against the D5090-041 Duct Assembly on aircraft with Dual Hydraulics.

## 2.0 PURPOSE


The purpose of this Dart Service Instruction (DSI) is to allow the installation of the D5526-1/-3 Hose Protectors to prevent premature wear of D4693-1 Flex Hose on the D350-822-011 PA100 PUREair System.

## 3.0 PROCEDURE

Additional B54320-A5 washers may be installed under the nuts to ensure 1.5-4 threads in safety on the bolts. Although not generally necessary, it is also acceptable to replace the LN9038-05016 bolts with longer or shorter LN9038-05016 bolts, if required.

- 3.1 Remove Q21310 Transition Duct Assembly with the D5090-041 Duct Assembly from AS350/EC130 engine cowl per ICA-D350-822.
- 3.2 Remove existing fasteners at the location where the D5526-1/-3 Upper/Lower Hose Protectors will be positioned, as shown in Figures 1 and 2. Discard fasteners.
- 3.3 Temporarily position the D5526-3 Lower Hose Protector onto the D5090-041 Duct Assembly and trim the small flange edge that interferes with D5526-3 as shown in Figure 3 (small hatched area).
- 3.4 Position the D5526-3 Lower Hose Protector flat on the D5090-041 Duct Assembly flange, and then align both edges of the D5526-3 with the edges of the D5090-041 flanges as shown in Figure 3. Trace the D5526-3 outside edge onto the the top and bottom flanges of D5090-041 as shown in Figure 3.
- 3.5 Trim flanges of the D5090-041 Duct Assembly and Q21310 Transition Duct Assembly to the markings created at step 3.4.
- 3.6 Position the D5526-1/-3 Hose Protectors onto the D5090-041 Duct Assembly and Q21310 Transition Duct Assembly. Transfer  $\varnothing 0.201$  (#7 drill) holes from D5090-041 Duct Assembly to the D5526-1/-3 Upper/Lower Hose Protectors as shown in Figure 3.

CANADA  
DEPARTMENT OF TRANSPORT  
AIRCRAFT CERTIFICATION  
BRANCH  
DAO # 01-O-01

APPROVED  
BY:   
D. SHEPHERD (DE # 02)

DATE: 18.01.12  
CERT. NO.: SH14-14  
ISSUE NO.: 2

APPROVED

A	NEW ISSUE; REF. PAR17-587	RF	18.01.12
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9793	SHEET 1 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	HOSE PROTECTOR INST.	NTS
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DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
<div style="display: flex;"> <div style="flex: 1;">           Environment <input type="checkbox"/>            Design <input type="checkbox"/>            Doc/Data <input type="checkbox"/>            Equip/Tooling <input type="checkbox"/>            Handling/Pre <input type="checkbox"/>            Material <input type="checkbox"/>            Internal Transport <input type="checkbox"/>            Tribal Knowledge <input type="checkbox"/>            LOA <input type="checkbox"/>            Substation <input type="checkbox"/>            Past Expiry Date <input type="checkbox"/>            Misidentified <input type="checkbox"/> </div> <div style="flex: 1;">           No Re-verification <input type="checkbox"/>            Operator <input type="checkbox"/>            Offset/Setup <input type="checkbox"/>            Supplier <input type="checkbox"/>            Training <input type="checkbox"/>            Use for Testing <input type="checkbox"/>            Poor Information <input type="checkbox"/>            Rushing <input type="checkbox"/>            Product Improvement <input type="checkbox"/>            Process Improvement <input type="checkbox"/>            Manufacturing Process <input type="checkbox"/>            Past Due <input type="checkbox"/> </div> </div>	<div style="display: flex;"> <div style="flex: 1;">           Pressure/Forced <input type="checkbox"/>            Bending <input type="checkbox"/>            Centre Not Concentric <input type="checkbox"/>            Cracks <input type="checkbox"/>            Crimp/Kink/Ripple/Wave <input type="checkbox"/>            Cuffs <input type="checkbox"/>            Crushing <input type="checkbox"/>            Heat Treat <input type="checkbox"/>            Wave/Twist in Tube <input type="checkbox"/>            Marks/Chatter <input type="checkbox"/> </div> <div style="flex: 1;">           Temperature/Cure <input type="checkbox"/>            Set-up <input type="checkbox"/>            BOM/Route <input type="checkbox"/>            Broken/Damage/Defect <input type="checkbox"/>            Inspection Incomplete/Unqualified <input type="checkbox"/>            Contamination <input type="checkbox"/>            Countersink <input type="checkbox"/>            Cut Too Short <input type="checkbox"/>            Instructions Incomplete/Unclear <input type="checkbox"/>            Drill Holes <input type="checkbox"/> </div> </div>	<div style="display: flex;"> <div style="flex: 1;">           Power Loss/Surge <input type="checkbox"/>            Folio/Program <input type="checkbox"/>            Grain <input type="checkbox"/>            Weld <input type="checkbox"/>            Wrong Stock Pulled <input type="checkbox"/>            Out of Sequence <input type="checkbox"/>            Off-set <input type="checkbox"/>            Misabeled <input type="checkbox"/>            Fit/Function <input type="checkbox"/>            Misaligned/off center <input type="checkbox"/> </div> <div style="flex: 1;">           Positioned Wrong <input type="checkbox"/>            Outside Dimensions <input type="checkbox"/>            Over/Under tolerance <input type="checkbox"/>            Part Incorrect <input type="checkbox"/>            Part Lost/Missing <input type="checkbox"/>            Part Moved <input type="checkbox"/>            Drawing <input type="checkbox"/>            Finish <input type="checkbox"/>            Misread <input type="checkbox"/>            Turning Sequence <input type="checkbox"/> </div> </div>			
OTHER : <input type="checkbox"/>					



3.7 Any/all of the following adjustments may be made to the installation in order to help the D5526-1/-3 Upper/Lower Hose Protector fit snugly:

- a) Washers may be trimmed if they interfere with the edge of the D5526-1/-3 Upper/Lower Hose Protector.
- b) The mating surface of the D5526-1/-3 Upper/Lower Hose Protector may be relieved to provide clearance for rivet heads/tails.
- c) The length of the D5526-1/-3 Upper/Lower Hose Protector may be trimmed while maintaining proper edge distance for the fasteners.

3.8 Deburr and touch up the edge of the trimmed parts with primer and paint in accordance with the Aircraft Maintenance Manual prior to re-installation. Seal the faying surface with Proseal 820 or equivalent.

3.9 Install D5526-1/-3 Upper/Lower Hose Protectors using 2x LN9038-05016 bolt, 4x B54320-A5 washers and LN938-05 nuts as shown in Figure 3. Torque fasteners 27-35 in-lb (3-4 N-m).

3.10 Install Q21310 Transition Duct Assembly with the modified D5090-041 Duct Assembly into the AS350/EC130 engine cowl in accordance with ICA-D350-822.

3.11 Update Aircraft Logbook to indicate installation of the DSI 9793-011 Hose Protector kit.

#### 4.0 WEIGHT AND BALANCE

This DSI has a negligible effect on Weight & Balance.

#### 5.0 PARTS LIST

QTY -011	PART NUMBER	DESCRIPTION
X	DSI 9793-011	HOSE PROTECTOR KIT
1	D5526-1	HOSE PROTECTOR
1	D5526-3	HOSE PROTECTOR
4	BS4320-A5	WASHER
2	LN9038-05016	BOLT
2	LN9348-05	NUT

APPROVED

DESIGN	RF	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. A
MFG. APPR.	N/A	<b>DSI 9793</b>	SHEET 2 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	<b>HOSE PROTECTOR INST.</b>	NTS
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DQA: \_\_\_\_\_ Date: \_\_\_\_\_



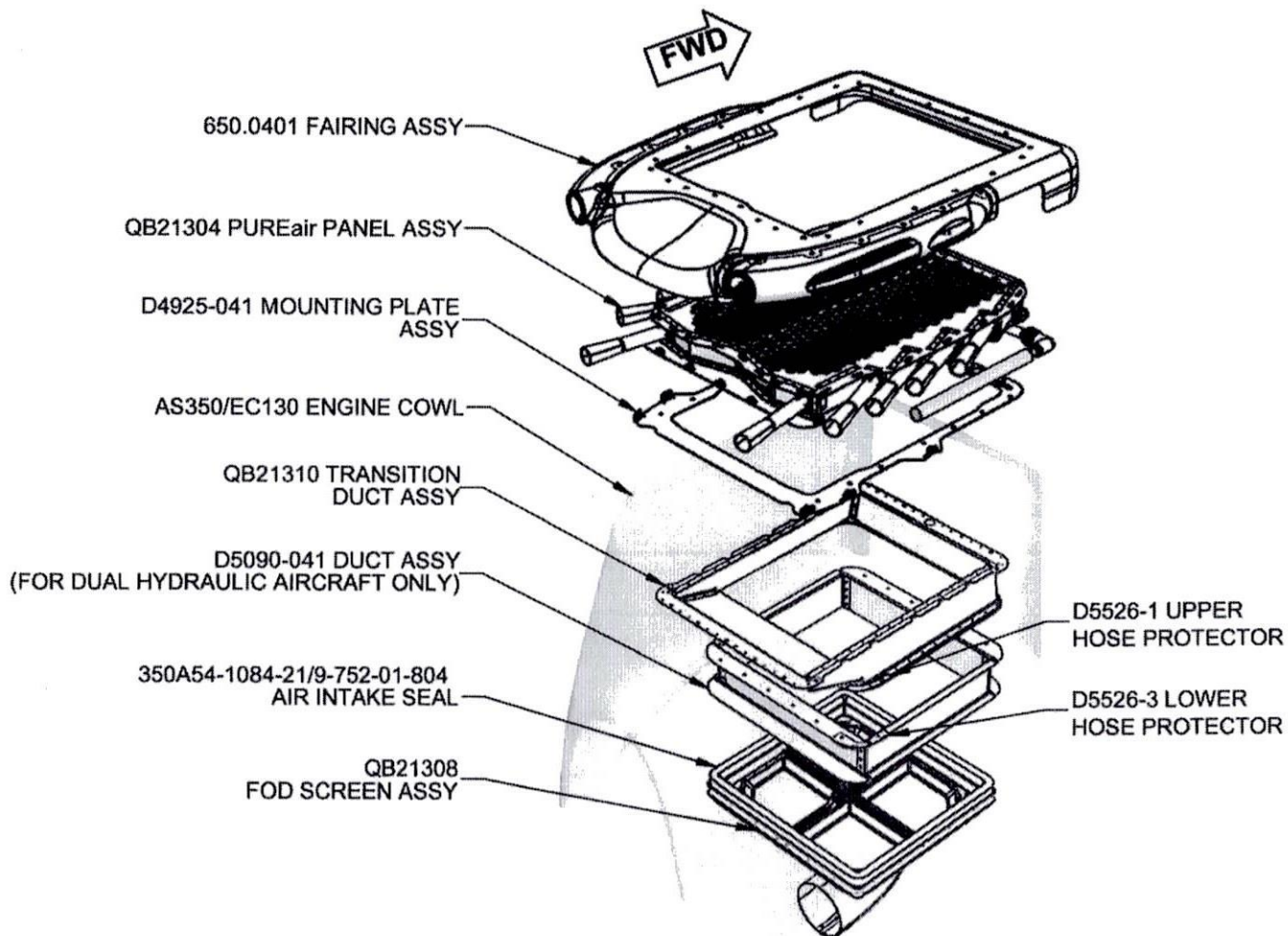
## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>			
Date :	Step #:	QTY Effective :		MRB (QS1042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment <input type="checkbox"/> Design <input type="checkbox"/> Doc/Data <input type="checkbox"/> Equip/Tooling <input type="checkbox"/> Handling/Pre <input type="checkbox"/> Material <input type="checkbox"/> Internal Transport <input type="checkbox"/> Tribal Knowledge <input type="checkbox"/> LOA <input type="checkbox"/> Substation <input type="checkbox"/> Past Expiry Date <input type="checkbox"/> Misidentified <input type="checkbox"/>	No Re-verification <input type="checkbox"/> Operator <input type="checkbox"/> Offset/Setup <input type="checkbox"/> Supplier <input type="checkbox"/> Training <input type="checkbox"/> Use for Testing <input type="checkbox"/> Poor Information <input type="checkbox"/> Rushing <input type="checkbox"/> Product Improvement <input type="checkbox"/> Process Improvement <input type="checkbox"/> Manufacturing Process <input type="checkbox"/> Past Due <input type="checkbox"/>	Pressure/Forced <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Wave/Twist in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/>	Temperature/Cure <input type="checkbox"/> Set-up <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Drill Holes <input type="checkbox"/>	Power Loss/Surge <input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Off-set <input type="checkbox"/> Misabeled <input type="checkbox"/> Fit/Function <input type="checkbox"/> Misaligned/off center <input type="checkbox"/>	Positioned Wrong <input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Misread <input type="checkbox"/> Turning Sequence <input type="checkbox"/>
<div style="display: flex; justify-content: space-between;"> <span>OTHER :</span> <input style="width: 80%;" type="text"/> </div>					





**Figure 1- PA100 PUREair Installation (D350-822-011)**

APPROVED

DESIGN	RF	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9793	SHEET 3 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	HOSE PROTECTOR INST.	NTS
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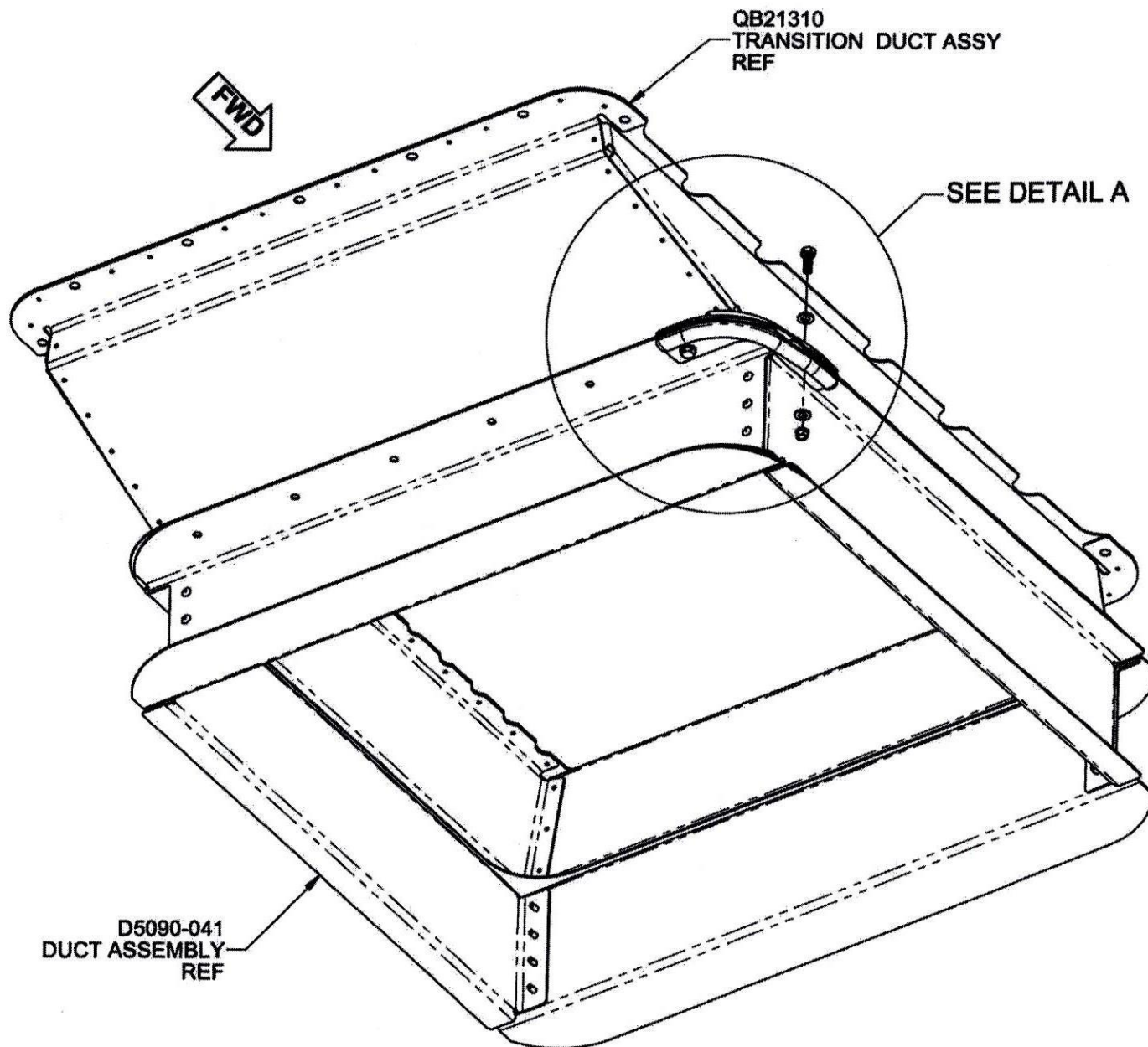
## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____		<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
<b>Root Cause</b>		<b>FAULT CATEGORY</b>							
Environment <input type="checkbox"/>	No Re-verification <input type="checkbox"/>	Pressure/Forced <input type="checkbox"/>	Temperature/Cure <input type="checkbox"/>	Power Loss/Surge <input type="checkbox"/>	Positioned Wrong <input type="checkbox"/>				
Design <input type="checkbox"/>	Operator <input type="checkbox"/>	Bending <input type="checkbox"/>	Set-up <input type="checkbox"/>	Folio/Program <input type="checkbox"/>	Outside Dimensions <input type="checkbox"/>				
Doc/Data <input type="checkbox"/>	Offset/Setup <input type="checkbox"/>	Centre Not Concentric <input type="checkbox"/>	BOM/Route <input type="checkbox"/>	Grain <input type="checkbox"/>	Over/Under tolerance <input type="checkbox"/>				
Equip/Tooling <input type="checkbox"/>	Supplier <input type="checkbox"/>	Cracks <input type="checkbox"/>	Broken/Damage/Defect <input type="checkbox"/>	Weld <input type="checkbox"/>	Part Incorrect <input type="checkbox"/>				
Handling/Pre <input type="checkbox"/>	Training <input type="checkbox"/>	Crimp/Kink/Ripple/Wave <input type="checkbox"/>	Inspection Incomplete/Unqualified <input type="checkbox"/>	Wrong Stock Pulled <input type="checkbox"/>	Part Lost/Missing <input type="checkbox"/>				
Material <input type="checkbox"/>	Use for Testing <input type="checkbox"/>	Cuffs <input type="checkbox"/>	Contamination <input type="checkbox"/>	Out of Sequence <input type="checkbox"/>	Part Moved <input type="checkbox"/>				
Internal Transport <input type="checkbox"/>	Poor Information <input type="checkbox"/>	Crushing <input type="checkbox"/>	Countersink <input type="checkbox"/>	Off-set <input type="checkbox"/>	Drawing <input type="checkbox"/>				
Tribal Knowledge <input type="checkbox"/>	Rushing <input type="checkbox"/>	Heat Treat <input type="checkbox"/>	Cut Too Short <input type="checkbox"/>	Mislabeled <input type="checkbox"/>	Finish <input type="checkbox"/>				
LOA <input type="checkbox"/>	Product Improvement <input type="checkbox"/>	Wave/Twist in Tube <input type="checkbox"/>	Instructions Incomplete/Unclear <input type="checkbox"/>	Fit/Function <input type="checkbox"/>	Misread <input type="checkbox"/>				
Substation <input type="checkbox"/>	Process Improvement <input type="checkbox"/>	Marks/Chatter <input type="checkbox"/>	Drill Holes <input type="checkbox"/>	Misaligned/off center <input type="checkbox"/>	Turning Sequence <input type="checkbox"/>				
Past Expiry Date <input type="checkbox"/>	Manufacturing Process <input type="checkbox"/>	OTHER :							
Misidentified <input type="checkbox"/>	Past Due <input type="checkbox"/>								





**Figure 2- D5526-1/-3 Upper/Lower Hose Protector Installation**

APPROVED

DESIGN	RF	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. A
MFG. APPR.	N/A	<b>DSI 9793</b>	SHEET 4 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	<b>HOSE PROTECTOR INST.</b>	NTS
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DQA: \_\_\_\_\_ Date: \_\_\_\_\_

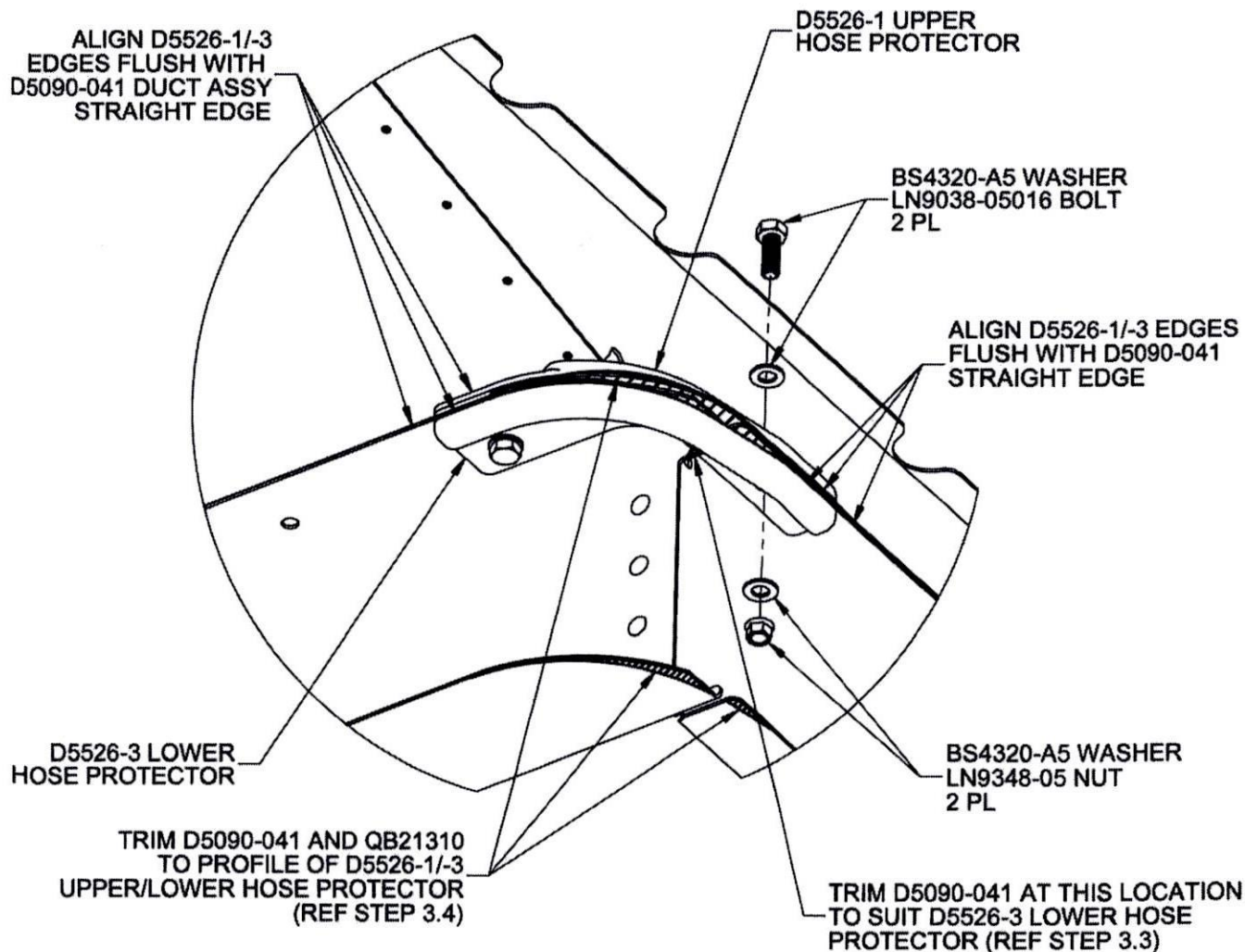


## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
<b>Root Cause</b> <div style="display: flex; justify-content: space-between;"> <div>           Environment <input type="checkbox"/>            Design <input type="checkbox"/>            Doc/Data <input type="checkbox"/>            Equip/Tooling <input type="checkbox"/>            Handling/Pre <input type="checkbox"/>            Material <input type="checkbox"/>            Internal Transport <input type="checkbox"/>            Tribal Knowledge <input type="checkbox"/>            LOA <input type="checkbox"/>            Substation <input type="checkbox"/>            Past Expiry Date <input type="checkbox"/>            Misidentified <input type="checkbox"/> </div> <div>           No Re-verification <input type="checkbox"/>            Operator <input type="checkbox"/>            Offset/Setup <input type="checkbox"/>            Supplier <input type="checkbox"/>            Training <input type="checkbox"/>            Use for Testing <input type="checkbox"/>            Poor Information <input type="checkbox"/>            Rushing <input type="checkbox"/>            Product Improvement <input type="checkbox"/>            Process Improvement <input type="checkbox"/>            Manufacturing Process <input type="checkbox"/>            Past Due <input type="checkbox"/> </div> </div>		<b>FAULT CATEGORY</b> <div style="display: flex; justify-content: space-between;"> <div>           Pressure/Forced <input type="checkbox"/>            Bending <input type="checkbox"/>            Centre Not Concentric <input type="checkbox"/>            Cracks <input type="checkbox"/>            Crimp/Kink/Ripple/Wave <input type="checkbox"/>            Cuffs <input type="checkbox"/>            Crushing <input type="checkbox"/>            Heat Treat <input type="checkbox"/>            Wave/Twist in Tube <input type="checkbox"/>            Marks/Chatter <input type="checkbox"/> </div> <div>           Temperature/Cure <input type="checkbox"/>            Set-up <input type="checkbox"/>            BOM/Route <input type="checkbox"/>            Broken/Damage/Defect <input type="checkbox"/>            Inspection Incomplete/Unqualified <input type="checkbox"/>            Contamination <input type="checkbox"/>            Countersink <input type="checkbox"/>            Cut Too Short <input type="checkbox"/>            Instructions Incomplete/Unclear <input type="checkbox"/>            Drill Holes <input type="checkbox"/> </div> <div>           Power Loss/Surge <input type="checkbox"/>            Folio/Program <input type="checkbox"/>            Grain <input type="checkbox"/>            Weld <input type="checkbox"/>            Wrong Stock Pulled <input type="checkbox"/>            Out of Sequence <input type="checkbox"/>            Off-set <input type="checkbox"/>            Misabeled <input type="checkbox"/>            Fit/Function <input type="checkbox"/>            Misaligned/off center <input type="checkbox"/> </div> <div>           Positioned Wrong <input type="checkbox"/>            Outside Dimensions <input type="checkbox"/>            Over/Under tolerance <input type="checkbox"/>            Part Incorrect <input type="checkbox"/>            Part Lost/Missing <input type="checkbox"/>            Part Moved <input type="checkbox"/>            Drawing <input type="checkbox"/>            Finish <input type="checkbox"/>            Misread <input type="checkbox"/>            Turning Sequence <input type="checkbox"/> </div> </div>			
OTHER : _____					



### DETAIL A

**Figure 3- D5526-1/-3 Upper/Lower Hose Protector Installation**

APPROVED

DESIGN	RF	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9793	SHEET 5 OF 5
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	HOSE PROTECTOR INST.	NTS
DATE	18.01.12	COPYRIGHT © 2018 BY DART AEROSPACE LTD. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Cross tube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment <input type="checkbox"/> Design <input type="checkbox"/> Doc/Data <input type="checkbox"/> Equip/Tooling <input type="checkbox"/> Handling/Pre <input type="checkbox"/> Material <input type="checkbox"/> Internal Transport <input type="checkbox"/> Tribal Knowledge <input type="checkbox"/> LOA <input type="checkbox"/> Substation <input type="checkbox"/> Past Expiry Date <input type="checkbox"/> Misidentified <input type="checkbox"/>	No Re-verification <input type="checkbox"/> Operator <input type="checkbox"/> Offset/Setup <input type="checkbox"/> Supplier <input type="checkbox"/> Training <input type="checkbox"/> Use for Testing <input type="checkbox"/> Poor Information <input type="checkbox"/> Rushing <input type="checkbox"/> Product Improvement <input type="checkbox"/> Process Improvement <input type="checkbox"/> Manufacturing Process <input type="checkbox"/> Past Due <input type="checkbox"/>	Pressure/Forced <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Wave/Twist in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/>	Temperature/Cure <input type="checkbox"/> Set-up <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Drill Holes <input type="checkbox"/>	Power Loss/Surge <input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Off-set <input type="checkbox"/> Misabeled <input type="checkbox"/> Fit/Function <input type="checkbox"/> Misaligned/off center <input type="checkbox"/>	Positioned Wrong <input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Misread <input type="checkbox"/> Turning Sequence <input type="checkbox"/>
OTHER : <input type="checkbox"/>					